



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/761,554	01/21/2004	Edward L. Coyle	13505A-1	2856
37414	7590	10/05/2005	EXAMINER	
CNH AMERICA LLC INTELLECTUAL PROPERTY LAW DEPARTMENT PO BOX 1895, MS 641 NEW HOLLAND, PA 17557			KIM, CHONG HWA	
			ART UNIT	PAPER NUMBER
			3682	

DATE MAILED: 10/05/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/761,554

Applicant(s)

COYLE ET AL.

Examiner

Chong H. Kim

Art Unit

3682

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 11 July 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 18,23,24,28,29 and 33 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 18,23,24,28,29 and 33 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on Jul 11, 2005 has been entered.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over Carlson et al., U.S. Patent 5,931,218 and in view of Schunck et al., U.S. Patent 4,633,938.

Carlson et al. shows, in Figs. 1-6, a method of cooling an axle assembly of a work vehicle, wherein the axle assembly includes an axle shaft (inherent), an axle housing 12, 18, 22, configured to substantially surround the axle shaft, a cooling coil 42 housed within the axle housing and having a passage therethrough and outer and inner surfaces, a lubricating fluid disposed within the axle housing, and a cooling fluid disposed within the passage, and further wherein the lubricating fluid is of a higher temperature than is the outer surface of the coil and

Art Unit: 3682

the outer surface of the coil is of a higher temperature than is the cooling fluid, the method comprising steps of; removing heat from the lubricating fluid by placing the lubricating fluid in contact with the outer surface of the coil wherein the outer surface of the coil is disposed between a brake assembly and a differential gearset; removing the heat from the inner surface of the coil by circulating the cooling fluid through the passage; directing flow of cooling fluid to the coil by using a back pressure regulating valve 134 to impose a pressure difference across the coil; and removing the heat from the cooling fluid by circulating the cooling fluid through a heat exchanger; but fails to show the coil being entirely disposed underneath the axle shaft.

Schunck et al. teaches, as shown in Fig. 2, the method of cooling the gearset by disposing a coil 20 entirely underneath the shafts.

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify the location of the coil of Carlson et al. with the coil being disposed entirely under the gearset system as taught by Schunck et al. in order to provide a more effective cooling system so that the mechanism will last longer.

4. Claims 18, 23, 24, and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Baedke et al., U.S. Patent 5,316,106 in view of Carlson et al., U.S. Patent 5,931,218 and in view of Schunck et al., U.S. Patent 4,633,938.

Baedke et al. shows, in Figs. 1-4, a method of cooling an axle assembly of a work vehicle, wherein the axle assembly includes axle shafts, axle housings 16, 17, configured to substantially surround the axle shafts, cooling devices disposed underneath the axle shaft (the inner lower surface of the axle housing as described in col. 4, lines 3-17) housed within the axle

Art Unit: 3682

housing to cool the lubricant, but fails to show a coil disposed within the axle housing to remove the heat from the lubricant.

Carlson et al. shows, in Figs. 1-6, a method of cooling an axle assembly of a work vehicle, wherein the axle assembly includes an axle shaft (inherent), an axle housing 12, 18, 22, configured to substantially surround the axle shaft, a cooling coil 42 housed within the axle housing and having a passage therethrough and outer and inner surfaces, a lubricating fluid disposed within the axle housing, and a cooling fluid disposed within the passage, and further wherein the lubricating fluid is of a higher temperature than is the outer surface of the coil and the outer surface of the coil is of a higher temperature than is the cooling fluid, the method comprising steps of; removing heat from the lubricating fluid by placing the lubricating fluid in contact with the outer surface of the coil wherein the outer surface of the coil is disposed between a brake assembly and a differential gearset; removing the heat from the inner surface of the coil by circulating the cooling fluid through the passage; directing flow of cooling fluid to the coil by using a back pressure regulating valve 134 to impose a pressure difference across the coil; and removing the heat from the cooling fluid by circulating the cooling fluid through a heat exchanger.

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify the cooling method of Baedke et al. with the cooling method involving coil and cooling fluid as taught by Carlson et al. in order to provide a more effective cooling method so that the life of axle assembly is prolonged.

Art Unit: 3682

5. Claims 29 and 33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Carlson et al. and in view of Schunck et al.

Carlson et al. shows, in Figs. 1-6, a method of cooling an axle assembly of a work vehicle, wherein the axle assembly includes an axle shaft (inherent), an axle housing 12, 18, 22, configured to substantially surround the axle shaft, a cooling coil 42 housed within the axle housing and having a passage therethrough and outer and inner surfaces, a lubricating fluid disposed within the axle housing, and a cooling fluid disposed within the passage, and further wherein the lubricating fluid is of a higher temperature than is the outer surface of the coil and the outer surface of the coil is of a higher temperature than is the cooling fluid, the method comprising steps of; transmitting heat from a wet multiple disk brake disposed in the axle housing to the lubricating fluid (see col. 1, lines 42-44); removing heat from the lubricating fluid by placing the lubricating fluid in contact with the outer surface of the coil wherein the outer surface of the coil is disposed between a brake assembly and a differential gearset; removing the heat from the inner surface of the coil by circulating the cooling fluid through the passage; directing flow of cooling fluid to the coil by using a back pressure regulating valve 134 to impose a pressure difference across the coil; and removing the heat from the cooling fluid by circulating the cooling fluid through a heat exchanger; but fails to show the coil being entirely disposed underneath the axle shaft.

Schunck et al. teaches, as shown in Fig. 2, the method of cooling the gearset by disposing a coil 20 entirely underneath the shafts.

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify the location of the coil of Carlson et al. with the coil being

Art Unit: 3682

disposed entirely under the gearset system as taught by Schunck et al. in order to provide a more effective cooling system so that the mechanism will last longer.

Response to Arguments

6. Applicant's arguments with respect to claims 18, 24, and 29 have been considered but are moot in view of the new ground(s) of rejection.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Chong H. Kim whose telephone number is (571) 272-7108. The examiner can normally be reached on Tuesday - Friday; 7:00 - 5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David A. Bucci can be reached on (571) 272-7099. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

chk
September 30, 2005


CHONG H. KIM
PRIMARY EXAMINER